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OSHA LIANG L.L.P./SUN 1221 MCKINNEY, SUITE 2800 HOUSTON, TX 77010			DODDS, HAROLD E	
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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/993,937	<b>Applicant(s)</b> MERRELLS ET AL.	
	<b>Examiner</b> Harold E. Dodds, Jr.	<b>Art Unit</b> 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 March 2005 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. ("The LDUP Replication Update Protocol"), Crowe et al. (U.S. Patent Application Publication No. US 2002/0035559), and Cole et al. (U.S. Patent No. 6,074,434).

4. Stokes renders obvious independent claim 1 by the following:

"...a supplier server..." at p. 3, sec. 4.

"...a consumer server in communication with the supplier server..." at p. 3, sec. 4.

"...that manage replication of data contained within the directory server..." at p. 3, sec. 3.

"...from the supplier server to the consumer server..." at p. 3, sec. 4.

"...and a replica update vector..." at p. 6, sec. 5.2.

"...to synchronize the consumer server with respect to the supplier server..." at p. 2, sec. 3 and p. 3, sec. 4.

"...to synchronize the consumer server with the supplier server..." at p. 2, sec. 3 and p. 3, sec. 4.

"...wherein replication of data is managed using the replica update vector..." p. 6, sec. 5.2.

Stokes does not teach the use of pluggable services, performing comparisons, and the determining of a minimal set of updates.

5. However Crowe teaches the use of pluggable services as follows:

"...a plurality of pluggable services..." col. 10, lines 62-63 and col. 2, lines 58-61,

It would have been obvious to one of ordinary skill at the time of the invention to combine Crowe with Stokes to provide pluggable services in order to provide access to

update applications from a variety of sources. Stokes and Crowe have similar applications and use many technologies in common. Stokes and Crowe teach the use of protocol, the use of servers, the updating of data, and the use of numbers. Stokes provides consumer and supplier servers and replica update vectors and Crowe provides pluggable services.

Crowe does not teach the performing comparisons and the determining of a minimal set of updates.

6. However, Cole teaches the performing comparisons and the determining of a minimal set of updates as follows:

"...used to perform a comparison to determine a minimal set of updates necessary..." at col. 4, lines 4-8 and col. 6, lines 61-67.

"...wherein the minimal set of updates is the smallest possible set of updates necessary..." at col. 6, lines 61-67.

It would have been obvious to one of ordinary skill at the time of the invention to combine Cole with Stokes and Crowe to provide the determination of a minimal set of updates in order to reduce the amount of processing required and lower the cost of maintaining synchronized servers. Stokes, Crowe, and Cole have similar applications and use many technologies in common. Stokes, Crowe, and Cole teach the use of protocol, the use of servers, the updating of data, the use of directories, and the use of numbers, Stokes and Cole teach the use of directories, and Crowe and Cole teach the use of computers, the use of databases, and the use of networks. Stokes provides

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consumer and supplier servers and replica update vectors, Crowe provides pluggable services, and Cole performs comparisons and determines a minimal set of updates.

7. As per claim 4, the "...replica update vector comprises a change sequence number for each known replica..." is taught by Stokes at p. 6, sec. 5.2 and p. 9, sec. 5.3.2.2

and the "...and a description of a latest update received from a corresponding replica..." is taught by Stokes at p. 10, sec. 5.3.2.5 and p. 3, sec. 3.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Crowe, and Cole as applied to claim 1 above, and further in view of van Hoff et al. (U.S. Patent No, 6,272,536).

As per claim 2, the "...replica update vector..." is taught by Stokes at p. 6, sec. 5.2,

but the "...is persistently stored in a directory information tree..." is not taught by either Stokes, Crowe, or Cole.

However, van Hoff teaches the use of directory information trees as follows:

"...A channel index is a hierarchical tree data structure which can be stored in random access memory or in a persistent storage system. A channel index is a representation of the channel data and its structure. In the preferred embodiment each file and directory is represented as a node in the tree..." at col. 6, lines 16-21.

It would have been obvious to one of ordinary skill at the time of the invention to combine van Hoff with Stokes, Crowe, and Cole to provide hierarchical tree directories in order to use directory tree structures, which are common to many operating systems and gain acceptance from potential users. Stokes, Crowe, and Cole have similar

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applications and use many technologies in common. Stokes, Crowe, Cole, and van Hoff teach the use of protocol, the use of servers, the updating of data, the use of directories, and the use of numbers, Stokes, Cole, and van Hoff teach the use of directories, and Crowe, Cole, and van Hoff teach the use of computers, the use of databases, and the use of networks. Stokes provides consumer and supplier servers and replica update vectors, Crowe provides pluggable services, Cole performs comparisons and determines a minimal set of updates, and van Hoff provides hierarchical tree directories.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Crowe, and Cole as applied to claim 1 above, and further in view of Wong et al. (U.S. Patent No, 6,353,834).

As per claim 3, the "...memory representation of the replica update vector..." is taught by Stokes at p. 7, sec. 5.3 and p. 6, sec. 5.2, but the "...comprises a change sequence number pending list..." is not taught by either Stokes, Crowe, or Cole.

However, Wong teaches the use of a change sequence number pending list as follows:

"...These log records record changes to information in the preceding message block so that a complete history of changes to that particular message block are annotated..." at col. 8, lines 33-36.

"...As can be seen, in one embodiment, the header includes the number of segments in a queue file 122, the segment size 124, the QEMT sequence number or timestamp 126, the sequence number of the last log record in the previous segment 128, the current segment number 130, the queue head pointer 132, the queue tail pointer 134, the next available block in the current segment 136, the list of QEMT entries 138, the reservation table of disk

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blocks 140, the pending transaction list acting as coordinator 142 and the pending transaction list acting as participant 144..." at col. 9, lines 7-18.

It would have been obvious to one of ordinary skill at the time of the invention to combine Wong with Stokes, Crowe, and Cole to provide a change sequence number pending list in order to provide orderly coordination for the coming update. Stokes, Crowe, Cole and Wong have similar applications and use many technologies in common. Stokes, Crowe, Cole, and Wong teach the use of protocol, the use of servers, the updating of data, and the use of numbers, Stokes, Crowe, and Wong teach the use of replication and the use of sequences, and Crowe, Cole, and Wong teach the use of computers, databases, and networks. Stokes consumer and supplier servers and replica update vectors, Crowe provides pluggable services, Cole performs comparisons and determines a minimal set of updates, and Wong provides change sequence number pending lists.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Crowe, and Cole as applied to claim 1 above, and further in view of Huang et al. (U.S. Patent No, 6,393,434).

As per claim 5, the "...replica update vector..." is taught by Stokes at p. 6, sec. 5.2, but the "...is accessed through an application programming interface..." is not taught by either Stokes, Crowe, or Cole.

However, Huang teaches the accessing through an application programming interface as follows:



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"...A handheld client (such as a Palm Pilot) can obtain a connection to a network (such as the Internet or a local area network (LAN)) by dialing up to a network remote access server through a modem, or by having a direct serial-port connection (e.g., using the Palm Pilot cradle) to a computer (e.g., a desktop PC) that is connected to the network 105..." at col. 7, lines 33-39.

"...The executable code used by the server 107 or the client 101 to communicate with the proxy 102 (or directly with the counterpart client of the server 107) for synchronization is referred to as a sync API (Application Program Interface) 206 (further described with respect to FIG. 13 below)..." at col. 8, lines 9-14.

It would have been obvious to one of ordinary skill at the time of the invention to combine Huang with Stokes, Crowe, and Cole to provide access through an application programming interface in order to allow users of application programs to use common features of many operating systems to interface with operating systems. Stokes, Crowe, Cole, and Huang have similar applications and use many technologies in common. Stokes, Crowe, Cole, and Huang teach the use of protocol, the use of servers, the updating of data, and the use of numbers, Stokes, Crowe, and Huang teach the use of replication, and Crowe, Cole, and Huang teach the use of computers, databases, and networks. Stokes consumer and supplier servers and replica update vectors, Crowe provides pluggable services, Cole performs comparisons and determines a minimal set of updates, and Huang provides application program interfaces.

11. Claims 6, 7, 10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. ("The LDUP Replication Update Protocol"), Gehani et al. (U.S. Patent No. 6,098,078), and Cole et al. (U.S. Patent No. 6,074,434).

12. Stokes renders obvious independent claims 6 and 13 by the following:

"...from a consumer server..." at p. 3, sec. 4.

"...sending the replica update vector from the consumer server to a supplier server..." at p. 6, sec. 5.2.

"...of the consumer server with the replica update vector of the supplier server..." at p. 3, sec. 4 and p. 6, sec. 5.2.

"...to synchronize the consumer server with the supplier server..."

"...from the supplier server as an update to the replica update vector of the consumer server..." at p. 3, sec. 4 and p. 6, sec. 5.2.

Stokes does not teach the requesting of replicate update vectors, the comparing of replicate update vectors and the use of a minimal set of updates.

13. However, Gehani teaches the requesting of replicate update vectors and the comparing of replicate update vectors as follows:

"...requesting a replica update vector..." at col. 14, lines 11-14 and col. 8, lines 51-55.

"...comparing the replicate update vector..." at col. 8, lines 51-55.

It would have been obvious to one of ordinary skill at the time of the invention to combine Gehani with Stokes to provide requesting and comparing replicate update vectors to determine whether two sets of updates are identical or different in order to have a fast means of comparing data and conserve processing time on the computer. Stokes and Gehani have similar applications and use many technologies in common. Stokes and Gehani teach the use of protocol, the use of servers, the updating of data, the use of sequences, the use of numbers, the use of vectors, and the use of sessions.

Stokes provides consumer and supplier servers and replica update vectors and Gehani provides requesting and comparing replicate update vectors.

Gehani does not teach the use of a minimal set of updates.

14. However, Cole teaches the use of a minimal set of updates as follows:  
“...to obtain a minimal set of updates...” at col. 6, lines 61-67.  
“...wherein the minimal set of updates is the smallest possible set of updates necessary...,” at col. 6, lines 61-67.  
“...and sending the minimal set of updates...” at col. 6, lines 50-52 and col. 6, lines 61-67.

It would have been obvious to one of ordinary skill at the time of the invention to combine Cole with Stokes and Gehani to provide a minimal set of updates in order to define the smallest amount of updates required to maintain consistency between two systems and conserve processing time on the computer. Stokes, Gehani, and Cole have similar applications and use many technologies in common. Stokes, Gehani, and Cole teach the use of protocol, the use of servers, the updating of data, the use of numbers, and the use of sessions and Gehani and Cole teach the use computers, the use of databases, and the use of networks. Stokes provides consumer and supplier servers and replica update vectors, Gehani provides requesting and comparing replicate update vectors, and Cole provides minimal sets of updates.

15. As per claim 7, the “...exchanging the replica update vector...,” is taught by Stokes at p. 11, sec. 5.4

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and the "...at the beginning of a replication session....," is taught by Stokes at p. 5, sec. 4.2.

In claim 7, the term "replace" is used to represent "exchange".

16. As per claim 10, the "...replica update vector comprises a change sequence number for each known replica....," is taught by Stokes at p. 6, sec. 5.2 and p. 9, section 5.3.2.2

and the "...and a description of a latest update received from a corresponding replica....," is taught by Stokes at p. 10, sec. 5.3.2.5 and p. 2, sec. 3.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Gehani, and Cole as applied to claim 6 above, and further in view of van Hoff.

As per claim 8, the "...the replica update vector....," is taught by Stokes p. 6, sec. 5.2,

but the "...is persistently stored in a directory information tree....," is not taught by either Stokes, Gehani, or Cole.

However, van Hoff teaches the use of directory information trees as follows:

"...A channel index is a hierarchical tree data structure which can be stored in random access memory or in a persistent storage system..." at col. 6, lines 16-18.

It would have been obvious to one of ordinary skill at the time of the invention to combine van Hoff with Stokes, Gehani, and Cole to provide requesting and comparing replicate update vectors to provide a tree structure to store data in order to use a conventional method of storing related data and gain acceptance of the system. Stokes, Gehani, Cole, and van Hoff have similar applications and use many technologies in

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common. Stokes, Gehani, Cole, and van Hoff teach the use of protocol, the use of servers, the updating of data, and the use of numbers and Gehani, Cole, and van Hoff teach the use of computers, the use of databases, and the use of networks. Stokes provides consumer and supplier servers and replica update vectors, Gehani provides requesting and comparing replicate update vectors to determine whether two sets of replica are identical or different, Cole provides minimal sets of updates, and van Hoff provides trees to store the replica data.

18. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Gehani, and Cole as applied to claim 6 above, and further in view of Wong.

As per claim 9, the "...memory representation of the replica update vector..." is taught by Stokes at p. 7, sec. 5.3 and p. 6, sec. 5.2, but the "...comprises a change sequence number pending list..." is not taught by either Stokes, Gehani, or Cole.

However, Wong teaches the use of a change sequence number pending list as follows:

"...These log records record changes to information in the preceding message block so that a complete history of changes to that particular message block are annotated..." at col. 8, lines 33-36.

"...As can be seen, in one embodiment, the header includes the number of segments in a queue file 122, the segment size 124, the QEMT sequence number or timestamp 126, the sequence number of the last log record in the previous segment 128, the current segment number 130, the queue head pointer 132, the queue tail pointer 134, the next available block in the current segment 136, the list of QEMT entries 138, the reservation table of disk blocks 140, the pending transaction list acting as coordinator

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142 and the pending transaction list acting as participant  
144..." at col. 9, lines 7-18.

It would have been obvious to one of ordinary skill at the time of the invention to combine Wong with Stokes, Gehani, and Cole to provide a change sequence number pending list in order to provide orderly coordination for the coming update. Stokes, Gehani, Cole, and Wong have similar applications and use many technologies in common. Stokes, Gehani, Cole, and Wong teach the use of protocol, the use of servers, the updating of data, and the use of numbers and Gehani, Cole, and Wong teach the use of computers, the use of databases, and the use of networks. Stokes provides consumer and supplier servers and replica update vectors, Gehani provides requesting and comparing replicate update vectors, Cole provides minimal sets of updates, and Wong provides change sequence number pending lists.

19. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Gehani, and Cole as applied to claim 6 above, and further in view of Huang.

As per claim 11, the "...replica update vector..." is taught by Stokes at p. 6, sec. 5.2,  
but the "...is accessed through an application programming interface..." is not taught by either Stokes, Gehani, or Cole.

However, Huang teaches the accessing through an application programming interface as follows:

"...A handheld client (such as a Palm Pilot) can obtain a connection to a network (such as the Internet or a local area network (LAN)) by dialing up to a network remote access server through a modem, or by having a direct serial-port connection (e.g., using the Palm Pilot cradle) to a computer (e.g., a

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desktop PC) that is connected to the network 105..." at col. 7, lines 33-39.

"...The executable code used by the server 107 or the client 101 to communicate with the proxy 102 (or directly with the counterpart client of the server 107) for synchronization is referred to as a sync API (Application Program Interface) 206 (further described with respect to FIG. 13 below)..." at col. 8, lines 9-14.

It would have been obvious to one of ordinary skill at the time of the invention to combine Huang with Stokes, Gehani, and Cole to provide a change sequence number pending list in order to provide orderly coordination for the coming update. Stokes, Gehani, Cole, and Huang have similar applications and use many technologies in common. Stokes, Gehani, Cole, and Huang teach the use of protocol, the use of servers, the updating of data, and the use of numbers, and Gehani, Cole, and Huang teach the use of computers, the use of databases, and the use of networks. Stokes provides consumer and supplier servers and replica update vectors, Wong provides requesting and comparing replicate update vectors, Cole provides minimal sets of updates, and Huang provides application program interfaces.

### ***Response to Arguments***

20. Applicants' arguments filed 22 March 2005 have been fully considered but they are not persuasive. In the first argument on page 4, paragraph 2, the Applicants state:

"Applicant respectfully requests the Examiner to initial next to the entry labeled "Combined Search and Examination Report; July 17, 2003" under the heading "OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS" in the PTO-1449 Form filed on August 23, 2003."



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The Image File Wrapper (IWF) image for the Information Disclosure Statement (IDS) filed on 28 August 2003 appears to be defective. The third page of the IDS is a "Certificate of Mailing by "EXPRESS MAIL". This was the only IDS filed in 2003.

21. In the second argument for independent claim 1 on page 5, paragraph 3 and page 6, paragraphs 1 and 2, the Applicants state:

"With respect to the rejection of the claims, the Examiner admits that Stokes fails to teach or suggest "determining of a minimal set of updates" on page 3 of the Office Action mailed January 27, 2005, and relies on van Hoff to disclose this limitation. However, van Hoff fails to disclose or suggest performing a comparison to determine a minimal set of updates, as required by amended independent claim 1. Specifically, the Examiner cites column 8, lines 35-38 and col. 4, lines 48-52 of van Hoff in asserting that van Hoff discloses this limitation of claim 1. However, the cited portions of van Hoff disclose an optimized update vector that is "a lot smaller" than the original update vector due to the replacement of a channel index with the checksum of the channel index. An update vector that may be smaller than another update vector due to replacement of a field in the vector is not the same as a minimal set of updates because a smaller vector may be smaller by any arbitrary amount, whereas a minimal set is defined as the smallest possible set of updates.

Further, as described above, two RUVs are compared to determine discrepancies, which results in the minimal set of updates required. On the other hand, van Hoff fails to disclose or suggest determining a minimal set, and thus, necessarily cannot disclose or suggest performing a comparison of RUVs to determine the minimal set of updates required to synchronize two servers."

The Examiner disagrees. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. The van Hoff reference have been replaced by the Crowe and Cole references. Cole teaches the performing a comparison to determine a minimal set of updates at col. 4, lines 4-8 and col. 6, lines 61-67.

22. In the third argument for claims 2 and 4 on 6, paragraph 3, the Applicants state:



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"In view of the above, it is clear that Stokes and van Hoff, whether considered separately or in combination, fail to render amended independent claim 1 as obvious. Dependent claims 2 and 4 are patentable over Stokes and van Hoff for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested."

The Examiner disagrees. Since the response to the second argument shows that independent claim 1 is still rendered obvious, claims 2 and 4 are dependent on independent claim 1, and no additional arguments have been provided for either claim then claims 2 and 4 are still rendered obvious.

23. In the fourth argument for claim 3 on page 6, paragraph 5, the Applicants state:

"As discussed above, both Stokes and van Hoff fail to render amended independent claim 1 obvious. Further, Wong fails to supply that which Stokes and van Hoff lack. Specifically, Wong at least fails to disclose or suggest determining a minimal set of updates by performing a comparison. Instead, Wong discloses a message queuing system that saves and stores messages and their state in an efficient single file on a single disk to enable rapid recovery from server failures (See Wong, Abstract). Thus, all writes are contained in one sweeping motion of the write head in which the write head moves only in one direction and only once to find the area where it needs to start writing messages and their states are stored. Wong is completely unrelated to finding and updating discrepancies between two servers to keep data contained in the two servers consistent. Thus, like Stokes and van Hoff, Wong fails to disclose or suggest at least determining a minimal set of updates by comparing two RUVs, where the minimal set of updates is the smallest possible set of updates necessary to synchronize two servers. In view of the above, it is clear that Stokes, van Hoff, and Wong, whether considered separately or in combination, fail to render amended independent claim 1 obvious. Dependent claim 3 is patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested."

The Examiner disagrees. Independent claim 1 is rendered obvious by a combination of teachings from Stokes, Crowe, and Cole. There is no additional requirement for Wong to also render obvious independent claim 1. Since the response to the second argument shows that independent claim 1 is still rendered obvious, claim 3 is dependent on

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independent claim 1, and the additional arguments provided for claim 3 fail to address the limitations in claim 3 then claim 3 is still rendered obvious.

24. In the fifth argument for claim 5 on page 7, paragraph 2, the Applicants state:

"As discussed above, both Stokes and van Hoff fail to render amended independent claim 1 obvious. Further, Huang fails to supply that which Stokes and van Hoff lack. Specifically, Huang fails to disclose or suggest at least determining a minimal set of updates by performing a comparison. Huang discloses a method and system for performing synchronization between a first replica associated with an application in a first computer processing device and a second replica associated with the application in a second computer processing device (See Huang, Abstract). A synchronization plan is generated to perform the synchronization, which includes data structure information corresponding to data structures of the replicas, storage access information for enabling access to each individual data unit within the data structures of the replicas, and synchronization and conflict resolution actions for specifying actions to be taken for each individual data unit with respect to the synchronization. Huang is completely silent with respect to determining a minimal set of updates, where the minimal set of updates is the smallest possible set of updates necessary to synchronize two servers. Further, Huang fails to disclose or suggest comparing two RUVs to determine a minimal set of updates."

The Examiner disagrees. Independent claim 1 is rendered obvious by a combination of teachings from Stokes, Crowe, and Cole. There is no additional requirement for Huang to also render obvious independent claim 1. Since the response to the second argument shows that independent claim 1 is still rendered obvious, claim 5 is dependent on independent claim 1, and the additional arguments provided for claim 5 fail to address the limitations in claim 5 then claim 5 is still rendered obvious.

25. In the sixth argument for independent claim 6 on page 8, paragraph 1, the Applicants state:

"With respect to claim 6, the Examiner admits that Stokes fails to disclose or suggest comparing the replicate update vector." Further, as discussed above, Stokes fails to disclose or suggest "...obtain a minimal set of updates, wherein the minimal set of

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updates is the smallest possible set of updates necessary to synchronize the consumer server with the supplier server." Additionally, because the Examiner admitted that Stokes fails to disclose "...sending the discrepancies of a comparison," it is not possible for Stokes to disclose "sending the minimal set of updates."

The Examiner disagrees. Applicant's arguments with respect to claim 6 have been considered but are moot in view of the new ground(s) of rejection. The Cole reference has been added to the Stokes and Gehani references. Cole teaches sending a minimal set of updates at col. 6, lines 50-52 and col. 6, lines 61-67.

26. In the seventh argument for independent claim 6 on page 8, paragraphs 2 and 3, the Applicants state:

"Further, Gehani fails to supply that which Stokes lacks. Specifically, Gehani relates to maintaining consistency of database replicas using version vectors to determine whether updates are necessary. However, Gehani fails to disclose or suggest at least determining of a minimal set of updates, where the minimal set of updates is the smallest possible set of updates necessary to synchronize two servers. Instead, Gehani periodically compares version vectors of pairs of data item replicas and brings the older replica up-to-date if the version vectors are not identical (See Gehani, col. 8, 11. 51-55). The method of Gehani is completely silent with respect to determining a minimal set of updates needed to synchronize a consumer server with respect to a supplier server. Additionally, the Examiner asserts that Gehani teaches "requesting a replica update vector," and references column 14, lines 11-14 of Gehani. However, the cited portion of Gehani is completely unrelated to requesting an RUV. Instead, Gehani discloses receiving an out-of-bound request. An out-of-bound request represents data items obtained by direct copying, outside the normal update propagation procedure of Gehani (col. 14, 11. 7-10), whereas a replica update vector contains the state of a replica of information in a directory server with respect to other replicas."

The Examiner disagrees. Applicant's arguments with respect to claim 6 have been considered but are moot in view of the new ground(s) of rejection. The Cole reference has been added to the Stokes and Gehani references. Cole teaches sending a minimal set of updates at col. 6, lines 50-52 and col. 6, lines 61-67. Gehani teaches the

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requesting a replicate update vector at col. 14, lines 11-14 and col. 8, lines 51-55.

Gehani teaches receiving a request as follows:

"...Upon receiving an out-of-bound request for data item  $x_j$ , sends the auxiliary copy  $x'_j$  (if it exists), or the regular copy  $x_j$  (otherwise), together with the corresponding IVV (auxiliary or regular)..." at col. 14, lines 11-14.

A system that receives requests may also make requests. Since Gehani reaches the use of replicate update vectors at col. 8, lines 51-55, it is reasonable to combine these two teachings of Gehani to suggest the requesting of replicate update vectors.

27. In the eighth argument for claims 7 and 10 and independent claim 13 on page 9, paragraph 2, the Applicants state:

"In view of the above, it is clear that Gehani fails to disclose or suggest the above limitations that Stokes lacks. Thus, amended independent claim 6 is patentable over Stokes and Gehani, whether considered separately or in combination. Further, dependent claims 7 and 10 are patentable for at least the same reasons. Independent claim 13 has also been amended to include similar allowable subject matter. Thus, claim 13 is also patentable over Stokes and Gehani for at least the same reasons as independent claim 6. Accordingly, withdrawal of this rejection is respectfully requested."

The Examiner disagrees. Since the responses to the sixth and seventh arguments show that independent claim 6 is still rendered obvious, claims 7 and 10 are dependent on independent claim 6, and no additional arguments have been provided for either claim then claims 7 and 10 are still rendered obvious. Likewise, since independent claim 13 is rejected by the same combination of references as independent claim 6 and no additional arguments have been provided for independent claim 13 then independent claim 13 is still rendered obvious.

28. In the ninth argument for claim 8 on page 9, paragraph 2, the Applicants state:

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"As discussed above, Stokes, Gehani, and van Hoff all fail to render the amended independent claims obvious. Specifically, Stokes, Gehani, and van Hoff fail to disclose or suggest at least determining a minimal set of updates, where the minimal set of updates is the smallest possible set of updates necessary to synchronize two servers. In view of the above, it is clear that amended independent claim 6 is patentable over Stokes, Gehani and van Hoff. Dependent claim 8 is patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested."

The Examiner disagrees. Independent claim 6 is rendered obvious by a combination of teachings from Stokes, Gehani, and Cole. There is no additional requirement for van Hoff to also render obvious independent claim 6. Since the response to the sixth and seventh arguments show that independent claim 6 is still rendered obvious, claim 8 is dependent on independent claim 6, and no additional arguments have been provided for claim 8 then claim 8 is still rendered obvious.

29. In the tenth argument for claim 9 on page 9, paragraph 4, the Applicants state:

"As discussed above, Stokes, Gehani, and Wong all fail to render the amended independent claims obvious. Specifically, Stokes, Gehani, and Wong fail to disclose or suggest at least determining a minimal set of updates, where the minimal set of updates is the smallest possible set of updates necessary to synchronize two servers. In view of the above, it is clear that amended independent claim 6 is patentable over Stokes, Gehani and Wong. Dependent claim 9 is patentable for at least the same reasons."

The Examiner disagrees. Independent claim 6 is rendered obvious by a combination of teachings from Stokes, Gehani, and Cole. There is no additional requirement for Wong to also render obvious independent claim 6. Since the response to the sixth and seventh arguments show that independent claim 6 is still rendered obvious, claim 8 is dependent on independent claim 6, and no additional arguments have been provided for claim 8 then claim 8 is still rendered obvious.

30. In the eleventh argument for claim 11 on page 10, paragraph 3, the Applicants state:

“As discussed above, Stokes, Gehani, and Huang all fail to render the amended independent claims obvious. Specifically, Stokes, Gehani, and Huang fail to disclose or suggest at least determining a minimal set of updates, where the minimal set of updates is the smallest possible set of updates necessary to synchronize two servers. In view of the above, it is clear that amended independent claim 6 is patentable over Stokes, Gehani and Huang. Dependent claim 9 is patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.”

The Examiner disagrees. The Examiner assumes that Applicant is addressing claim 11 in stead of claim 9. Independent claim 6 is rendered obvious by a combination of teachings from Stokes, Gehani, and Cole. There is no additional requirement for Huang to also render obvious independent claim 6. Since the response to the sixth and seventh arguments show that independent claim 6 is still rendered obvious, claim 11 is dependent on independent claim 6, and no additional arguments have been provided for claim 11 then claim 11 is still rendered obvious.

### ***Conclusion***

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harold E. Dodds, Jr. whose telephone number is (571)-272-4110. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on (571)-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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*Harold E. Dodds, Jr.*

Harold E. Dodds, Jr.

Patent Examiner

June 14, 2005

  
CRETA ROBINSON  
PRIMARY EXAMINER